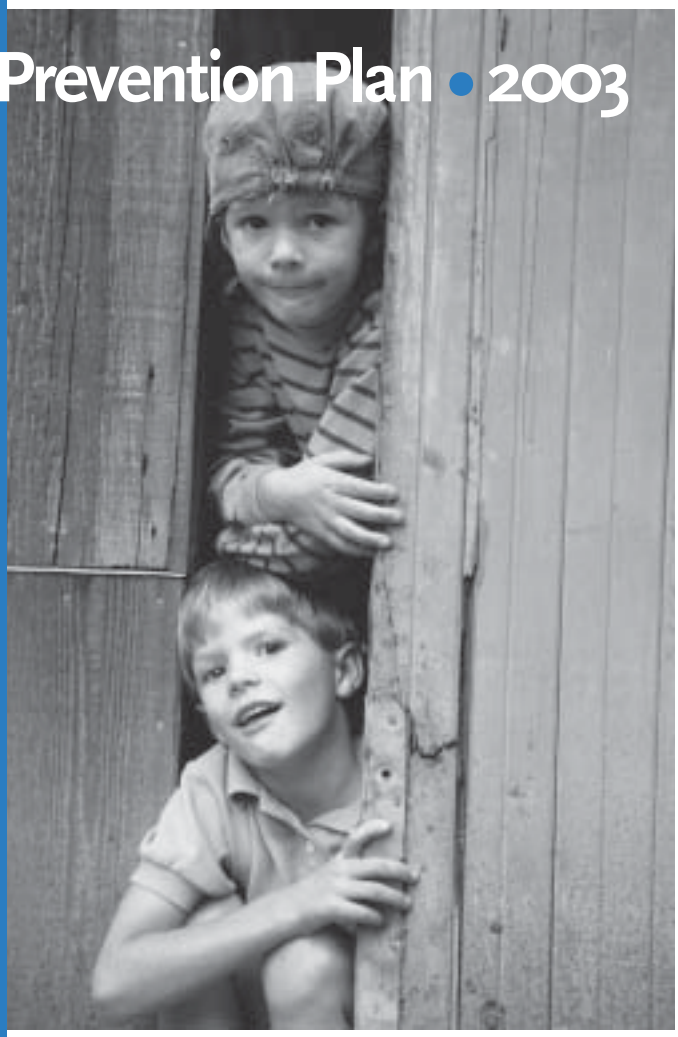
VT Asthma Prevention Plan • 2003



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Healthy Vermonters 2010

Contents VT Asthma Prevention Plan • 2003

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Almost everyone knows someone who has asthma. It may be a mild condition that occasionally limits activities or it may be quite severe and life threatening. Although we do not currently understand asthma well enough to cure it, it is possible to control it.

Asthma is a chronic and potentially life-threatening respiratory illness that is increasingly being recognized as a public health problem. Based on estimates from the federal Centers for Disease Control and Prevention (CDC), the prevalence of asthma is rising throughout the United States.

Most people with asthma can lead healthy, active lives with few symptoms. Successful management and treatment involves a partnership between health professionals and patients, and in the case of children with asthma the partnership must include schools, parents and other caregivers.

As with other public health problems, the first step is to identify and quantify the problem. In 2000, the Vermont Department of Health obtained funding from the Centers for Disease Control and Prevention to focus on asthma and its impact in Vermont. A state leadership conference was held in September 2001 and an Asthma Advisory Panel was created to help guide the state's efforts to better prevent and control asthma in the population.

This Vermont Asthma Prevention Plan provides a framework within which agencies, organizations, and individuals can work together to improve the health of Vermonters who have asthma.

HEALTHY VERMONTERS 2010

introduction

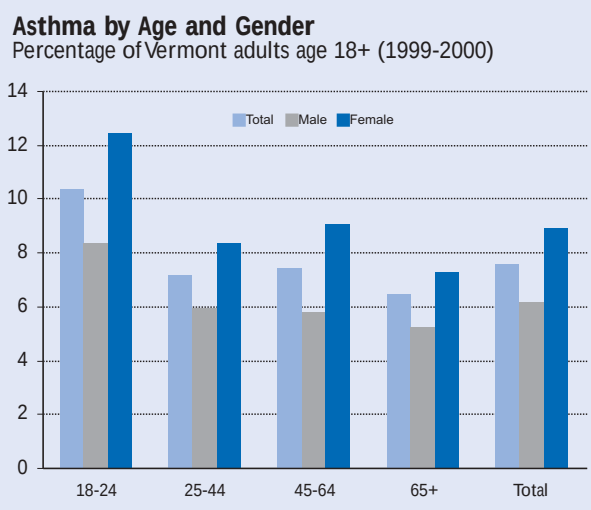
The Burden of Asthma

The Centers for Disease Control and Prevention (CDC) estimates that nationwide 10 million adults and 5 million children had asthma in 2000.[1] In Vermont during 1999 and 2000, 7.6 percent of adults reported that they currently have asthma. In 2001, an estimated 40,000 Vermont adults had asthma. The estimated prevalence of asthma among Vermont children is not yet available. However, in 2002, nearly 13 percent of 6th to 8th grade students reported having current asthma.[2] Among Vermont households with children under age 18 in 2001, 17 percent reported that at least one child had ever been diagnosed with asthma.[3]

Asthma is the most common chronic illness among children in the United States.[4] Of the 10 most prevalent chronic diseases asthma ranks third as the cause for limitation of activity.[5]

With proper management, hospitalization for asthma should be a rare occurrence. However, between 400,000 and 500,000 asthma hospitalizations occur each year in the U.S. The collective national cost of asthma has been estimated at $12.7 billion for 1998. In Vermont, in any given year, there are 300 to 500 asthma hospitalizations. In 1999, the cost of these hospitalizations was $2.1 million.[6]

Nationally, death from asthma occurs most frequently among African Ameri-



cans, among minority populations with high levels of poverty and among groups that lack adequate access to health services.[4] High levels of asthma occur in both urban and rural populations.

In 1999, 4,600 deaths occurred in the United States as a consequence of asthma.[7] In Vermont, there are an average of 15 or fewer deaths due to asthma each year.

The Nature of Asthma

Asthma is a chronic disease in which the small airways of the lungs narrow from inflammation and become overly reactive to "triggers." There are many kinds of triggers and they are different for different people. Common triggers include cat dander, foods, pollens, mold, mildew and dust. Others include air pollution, infections such as colds or flu, exercise, strong emotion, abrupt changes in weather, or irritants like tobacco smoke or chemicals found in household products.

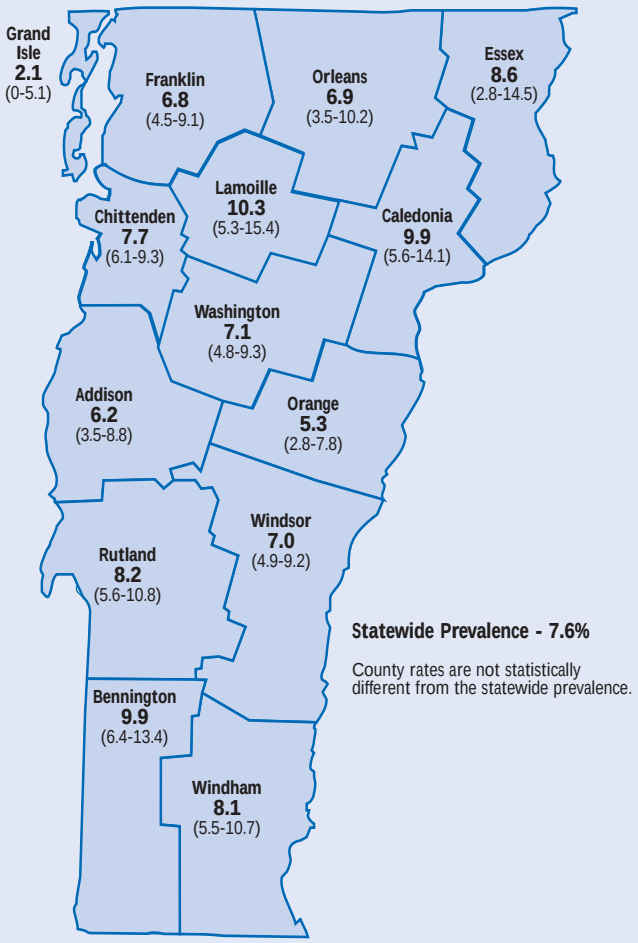
When the lungs become irritated mucus builds up in the airways causing shortness of breath, coughing, wheezing, chest pain or tightness, tiredness or a combination of these symptoms. Often individuals with severe asthma report difficulty sleeping and breathing. With accurate diagnosis, including identification of the individual's specific triggers, appropriate medications, and reduction of exposure to those asthma triggers, asthma need not, in most cases, seriously interfere with the individual's life.

Successful Asthma Control

Successful diagnosis, treatment and management of asthma require a specific treatment and management plan for the individual that is carried out wher-

Adult Asthma Prevalence

Percentage of adults currently diagnosed with asthma (1999-2000)



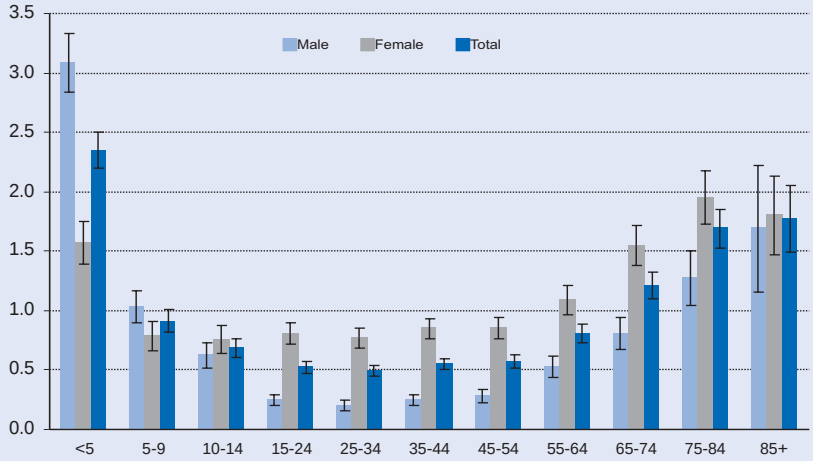
Statewide Prevalence - 7.6%

County rates are not statistically different from the statewide prevalence.

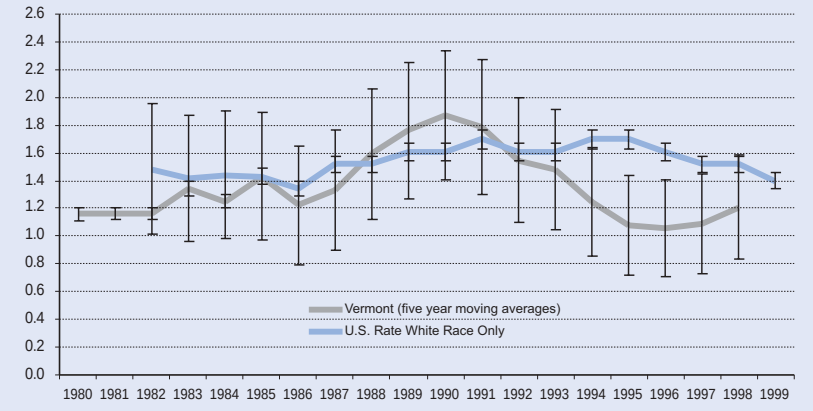
ever the person is. When children have asthma, physicians, parents, child, school nurse and other school personnel need to work together and communicate regularly in order to carry out a consistent management plan. Similarly, elderly persons with asthma require accurate diagnosis, treatment and coordination of asthma management to reduce exposure to triggers and maintain appropriate medication.

Asthma is a very individual condition. Some forms of asthma are more difficult

Asthma Hospitalizations by Age and Gender
Average annual rates per 1,000 Vermonters (1990-1999)



Asthma Deaths
Per 100,000 people



to manage than others. Most people who have asthma, if provided proper information, education and training in self-management skills, can bring their asthma under control. However, just as the severity of asthma may vary with some people having more difficult-to-manage asthma, so does the level of help required to successfully control it. For some individuals and families, community supports, active outreach and case management are needed to achieve successful asthma management.

Healthy Vermonters 2010

Healthy Vermonters 2010 is the state's blueprint for improving public health in Vermont over the next decade. It lays out measurable goals and objectives specific to Vermont's most pressing health concerns.

Developed under the leadership of the Vermont Department of Health and building on the success of *Healthy Vermonters 2000, Healthy Vermonters 2010* is the result of work by hundreds of people throughout Vermont. Health professionals, educators, policy makers, regulators, members of the business community and citizens had a hand in identifying priority areas and choosing goals through participation in volunteer work groups. In addition, all around the state people participated in public health interviews to determine what is most needed to improve the health of Vermonters, to increase quality and years of healthy life, and to eliminate health disparities.

Respiratory disease is a priority area of *Healthy Vermonters 2010*, with five specific goals and objectives. This Vermont Asthma Prevention Plan is an important step toward achieving those goals.

Healthy Vermonters 2010 Respiratory Disease Objectives

Increase the percentage of people with asthma who receive education about recognizing early signs and symptoms and how to respond.

National goal to be developed.

VT 2001: 44% of adults with asthma received education

Increase the percentage of people with asthma who receive written management plans from their health care professional.

National goal to be developed.

VT 2001: 31% of adults with asthma received written plans

Reduce the percentage of young children who are regularly exposed to tobacco smoke in the home.

Goal: 10%

VT 2000: 21% of children under age 5 are exposed to tobacco smoke at home

Further reduce pediatric asthma hospitalizations among people under age 18.

Goal: 17.3 per 10,000

VT 1999: 7.3 per 10,000 people under age 18 were hospitalized

Reduce COPD (Chronic Obstructive Pulmonary Disease) deaths.

Goal: 18 per 100,000

VT 2000: 50 deaths per 100,000 people

promote asthma awareness

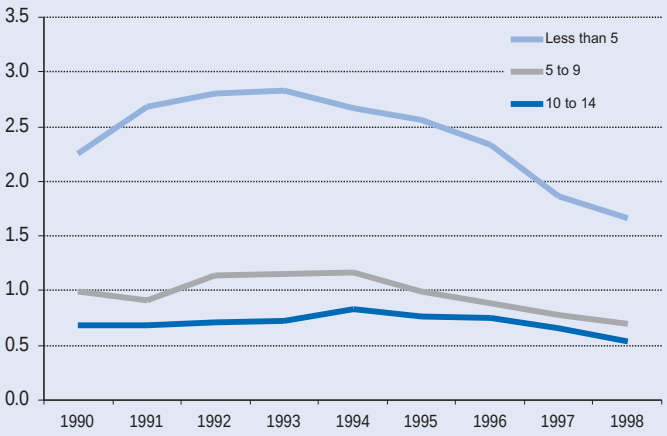
There are many reasons why people with asthma may not succeed in controlling it. Many people do not understand what is required to successfully manage asthma. Others lack faith in their ability to do what they believe is required.

Often those who have asthma do not consider it a chronic condition. They may view asthma episodes as acute illness, unrelated to an ongoing chronic disease process. This view of asthma can lead to failure to take maintenance medications[8] and to rely excessively on "rescue" medications.[9] Parents of children who have asthma may know that it is a condition that can be life threatening and believe they must restrict the child's activities to avoid triggering an attack.

Childhood Asthma

Exposure of susceptible children (those with a family history of asthma or parental smoking) to indoor and outdoor air pollution, allergens and irritants may result in asthma symptoms and slowed lung growth.[6,10] While research suggests that repeated exposures over time may lead to the development of full blown chronic respiratory conditions, recent evidence suggests this process can be reversed if environmental exposure is decreased.[10] Thus, prevention activity that focuses on reducing triggers and controlling symptoms offers the best opportunity to reduce childhood asthma.

Children's Asthma Hospitalization by Age Group
Per 1,000 Vermonters (3-year averages)



As a partial response to the need to spread the message about preventing

acute episodes and living well with asthma, the Health Department produced three brochures[12] that target parents of children from birth to 5 years, elementary children age 6 to 13, and teens. Additional public awareness activities are needed that further provide accurate information to these and other groups.

High Risk Groups

Nationally, those with the highest prevalence of asthma or most at risk for developing or having poorly managed asthma are people with asthma who smoke, children with asthma whose parents smoke, elderly people, women and low income groups.

Some counties in Vermont have higher rates of child exposure to tobacco smoke than others. Young children and Vermonters over 65 have the highest rates of hospitalization, while elders have the highest number of days in hospital for asthma. Half of the adults with asthma who use emergency room services had three or more visits in 2001.[12]

Asthma in the Elderly

For an older person, asthma may be a first time occurrence or represent a condition that began earlier in life and has continued and worsened with age.

Diagnosing and managing asthma in the elderly can present a number of challenges. Physical, psychological and social changes normally associated with aging may require modification of treatment and management strategies that are used successfully with children and younger adults. In older patients, for example, distinguishing between chronic obstructive pulmonary disease (COPD) and asthma is an important diagnostic consideration.[13] Studies suggest that asthma may be a more severe disease among older people[14] and that it may be underdiagnosed and under-treated.[15]

Promote awareness that people with asthma can lead healthy lives

Action Step 1: Convene consumer focus groups to identify needs, issues, impacts of message packaging on people who live with asthma.

Action Step 2: Develop and distribute convenient, easy-to-read materials about asthma.

Action Step 3: Develop a wallet-sized asthma action plan form for adults.

Action Step 4: Provide current asthma brochures to child care providers and local community asthma resource centers.

Increase asthma awareness among high risk groups

Action Step 1: Develop strategies to raise awareness among people who smoke and have asthma.

Action Step 2: Develop strategies to raise awareness among people who smoke and have children with asthma.

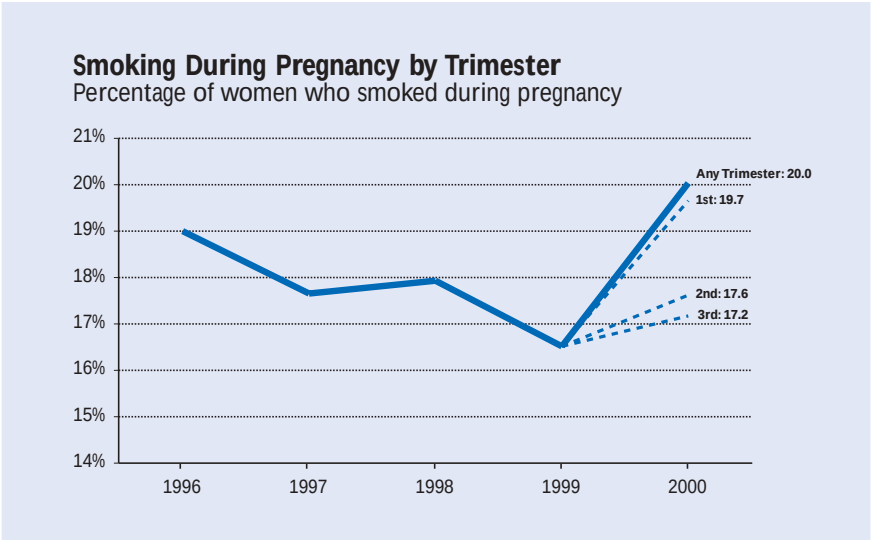
Action Step 3: Develop strategies to raise awareness among parents of young children with asthma.

Action Step 4: Develop strategies to raise awareness among women with asthma.

Action Step 5: Develop strategies to raise awareness among older adults with asthma.

Increase awareness of prevention and quality asthma care

Action Step 1: Develop and distribute messages about asthma prevention, diagnosis, treatment and management practices that follow national guidelines.



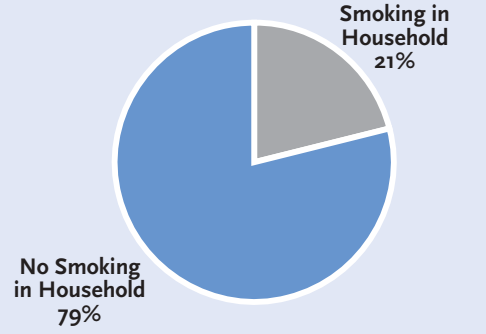
reduce exposure to asthma triggers . . . 9

It is not clearly known why or how people develop asthma. Asthma can begin in childhood or may first appear later in the life of the adult. In addition, not all childhood asthma continues into adulthood.

Research suggests that a number of factors come together to result in asthma. Among these are family history of asthma, respiratory infections, exposure during early childhood to tobacco smoke, and exposure to house dust mites or cockroach droppings. The strongest evidence indicates that exposure to house dust mites and to external tobacco smoke in young children can lead to the development of asthma.[4] Exposure to these irritants can also trigger attacks in people who already have asthma.

A variety of other triggers can also result in asthma attacks in sensitive individuals. Among these are cat dander, cockroach droppings, house dust mites, environmental tobacco smoke, dog dander, fungi or molds, and viruses.[4] Adequate studies do not yet exist about the effects of other substances on people with asthma.

Exposure to Environmental Tobacco Smoke
Percentage of households with children under age 5



Environmental Tobacco Smoke and Children

Tobacco smoke is strongly linked to the development of asthma in young children and clearly identified as an irritant that can precipitate an asthma attack in both children and adults. Children at higher risk of developing asthma are likely to have been low birthweight babies, exposed to tobacco smoke in utero or in early life.[16] For this reason asthma prevention activities with the greatest potential for reducing the amount of asthma and improving

asthma control focus on eliminating the exposure of children to tobacco smoke.

Health Effects of Building Technologies

People with asthma who are sensitized to particular triggers may find that certain indoor air pollutants can trigger asthma attacks. Although a generalized approach to reduction of asthma triggers will not produce the desired benefit of eliminating asthma episodes in all people with asthma, improving indoor air quality has been associated with the prevention of a number of health conditions and does reduce sensitized individual's asthma attacks triggered by specific environmental agents.

In Vermont efforts are underway to improve indoor air quality in homes and schools. However, much remains to be done to raise awareness among housing professionals — architects, building contractors and housing agency staffs or landlords—of the effects of building trades practices on indoor air quality.

Air Pollution

Although a causal link between air pollution and the development of asthma has not been conclusively proved, studies have connected exposure to air pollutants of various kinds to respiratory illnesses and greater use of emergency room services by children and older adults with asthma. Recent data suggests that long-term exposure to nitrogen dioxide, particulate matter and acid vapor slows lung development and that children with asthma exposed to higher concentrations of particulate matter are more likely to develop bronchitis.[10,17,18,19,20,21]

Reduce exposure to Environmental Tobacco Smoke (ETS)

Action Step 1: Develop research-based education strategies that target adults who smoke.

Action Step 2: Implement strategies to reduce exposure of children with asthma to tobacco smoke in their homes and in child care settings.

Raise awareness among housing professionals

Action Step 1: Educate architects, contractors, builders and other housing professionals about the health effects of building technologies.

Action Step 2: Develop and distribute informational materials on healthy home construction and renovation.

Action Step 3: Develop and pilot landlord education program on health effects of buildings and ways to improve indoor air quality.

Reduce exposure to outdoor air pollutants that contribute to asthma

Action Step 1: Raise public awareness of the contribution of air pollution to asthma episodes and other respiratory problems.

Action Step 2: Encourage issuance of regular public announcements of air quality in Vermont.

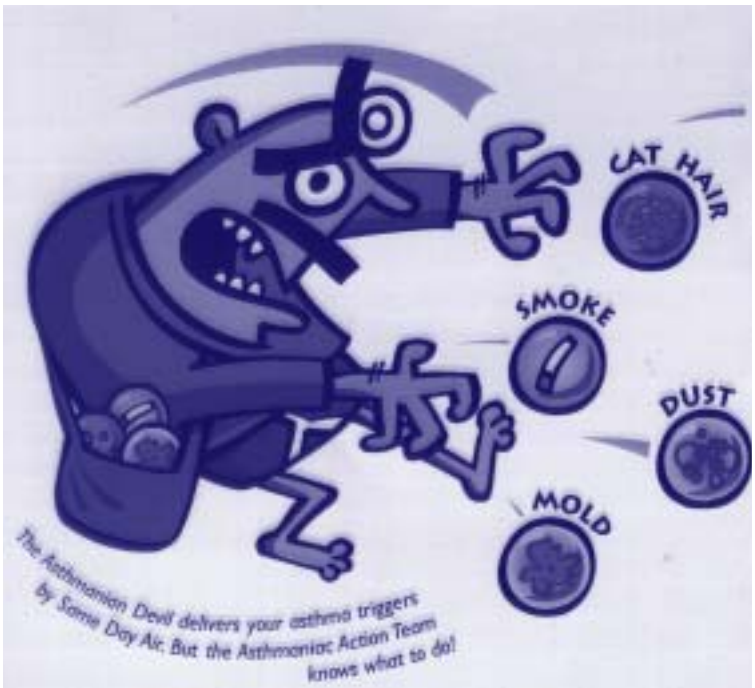
Action Step 3: Explore ways to assess the impact of air pollution on Vermonters with asthma.

Action Step 4: Raise public awareness about diesel emissions and the need to reduce exposure to diesel emissions.

Increase education on reducing exposure to asthma triggers

Action Step 1: Develop and disseminate messages about low-cost ways to reduce exposure to asthma triggers in the home.

Action Step 2: Develop materials on reducing exposure to triggers that physicians can give to their patients.



improve health services

Asthma, like other chronic conditions, requires collaborative management across health care providers and systems. The U.S. health care delivery system is currently more oriented toward acute care, not management of chronic conditions.[22]

Improving health services for people with asthma requires reorientation of the roles of patients, families and health care professionals, and improved communication and coordination. In addition, services need to be evidence-based, broadly available, and evaluated for effectiveness.

Patient-Physician Teamwork

The responsibility for successfully managing chronic conditions such as asthma rests primarily with patients and their families and requires supportive, collaborative relationships between patients and physicians. Patient-physician teamwork is needed to encourage effective communication and to ensure that appropriate diagnosis, education, treatment and management occur. If the person with asthma is a child the team should include the school nurse or child care provider as well. This approach requires mutual problem solving and regularly scheduled check-ups to monitor health status, identify complications and reinforce progress.

Asthma Management

Percentage of Vermont adults with asthma (2001)

- 44 percent report that they receive asthma education
- 31 percent report that they have a written management plan
- 73 percent report that they receive information on reducing triggers

In 2002, the Vermont Department of Health, in collaboration with health professionals and public and private insurers, developed and piloted a written asthma management plan form—the Vermont Asthma Action Plan. The companion Common Asthma Guideline provides physicians with an easy reference to the National Asthma Education and Prevention Program Updated 2002 Guideline for Diagnosis, Treatment and Management of Asthma.[23] These materials serve diagnostic, treatment, management and care coordination func-

tions and are the basis for future activities to improve quality of asthma care over the next several years.

Physician and School Nurse Coordination

A theme that emerged repeatedly in local area asthma meetings was the need for better communication and coordination between a child's physician and the school nurse. Nurses need a signed plan from parents and physicians that will permit them to facilitate better management of the child's asthma at school. Further, since children spend most of their waking hours in school, nurses often are one of the people best able to monitor and report to the physician and parents on the child's health status. The written asthma management plan form (the Vermont Asthma Action Plan) provides a mechanism to address this need.

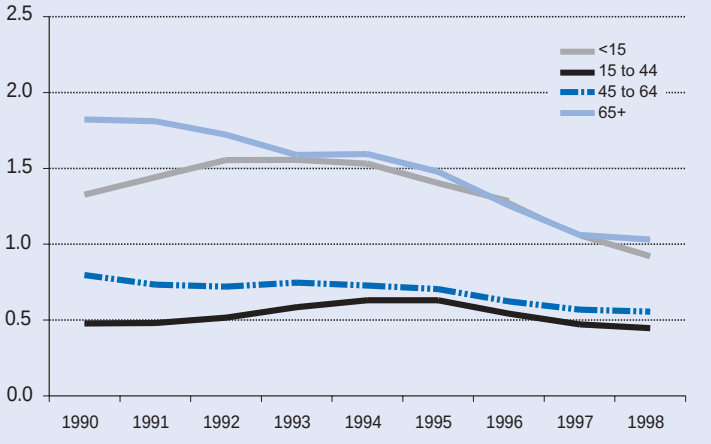
Administrative Supports for Clinical Practice

The lack of practice-level administrative supports to record, collect and report information on patients with asthma and provide feedback to physicians has been identified as a barrier to effective management of asthma and other chronic health conditions.[24] Very few practices in Vermont have adequate paper systems or make use of electronic technology to manage individual patient care or their asthma case loads. For example, most physician practice offices are unable to easily develop a list of all their patients who have asthma, or know how their patient load might vary by severity, or what kind of asthma education was provided and when, or determine whether medications that were prescribed were appropriately used.

High Risk, High Needs Families

The reasons why patients do not follow physician advice about controlling their asthma are complex and many. Sometimes patients and physicians do not perceive or understand asthma in the same way. Sometimes the effort required to achieve asthma control may seem overwhelming. Some families need active outreach and supportive demonstration of practical step-by-step ways to carry out an effective asthma management plan. These individuals and families may need behavior change counseling on smoking and reduction of other triggers provided in the physician's office and in the home setting as well. Such focussed efforts can lead to improved symptom control, decreased use of emergency and hospital services, and enhance the ability of people with asthma to lead healthy lives.

Asthma Hospitalizations by Age
Per 1,000 Vermonters



Rural Access

An issue that emerged in the local community meetings in the more rural areas of the state was the lack of access to specialty care and the absence of community supports, particularly for patients and families that have difficult-to-manage asthma. This situation may contribute to over-reliance on hospital emergency departments.

Understanding Health Care Coverage

A theme emerging among participants in local area asthma meetings, physicians who participated in the pilots of the written asthma management plan, and other asthma experts and health professionals, was the perceived lack of coverage for asthma medications and supplies. In meetings when this was discussed, the response from the payer community was that most health plans provided coverage for these items. However, due to variation among employer purchased benefits packages what is covered may differ from one plan to another. Further, physician offices do not always know what coverage is available for asthma patients or how to code to obtain payment for case planning and case management services. The only way to assure reimbursement is to check the individual's benefits and ask how the claim should be coded.

Evaluating Clinical Services

Administrative and information systems to support clinical practice can enhance service delivery. The initial success of efforts to improve the quality of care will be evaluated by the actual construction of these structures and processes. Evaluation of health status of patients with asthma is also required. Population-based measures such as reduced use of Emergency Department services or surveys of child exposure to tobacco smoke provide important population-level information. However, measures of individual client well-being and satisfaction, as well as clinical and functional status of people with asthma, offer better clinical outcome information. These measures may have the greatest relevance for improving the quality of clinical care.

Vermont Health Insurance Plans

Percentage of people age 10 to 56 with persistent asthma who receive appropriate medications (2001)

U.S. Average	63 percent
Regional Average	66 percent
Blue Cross Blue Shield/ VT Health Plan	78 percent
MVP Health Plan	79 percent
The VT Health Plan	68 percent

Improve physician practice

Action Step 1: Convene health professional task group to better define the issues and needs.

Action Step 2: Communicate recent research findings on asthma to health care professionals.

Action Step 3: Promote increased adherence to asthma guidelines.

Action Step 4: Promote use of written asthma management plans.

Action Step 5: Develop and pilot educational training on ways to fos-

ter patient self-management skills.

Action Step 6: Promote use of strategies to reduce patient exposure to asthma triggers.

Improve asthma care for people with respiratory symptoms

Action Step 1: Promote asthma quality improvement projects in outpatient pediatric care settings.

Action Step 2: Increase number of plans written for children, adults and older adults with asthma.

Action Step 3: Identify and increase awareness of the special needs of older patients with asthma and Chronic Obstructive Pulmonary Disease (COPD).

Increase coordination among physicians, families, school nurses, and child cares

Action Step 1: Involve children, parents, school nurses and child care providers in developing coordination strategies.

Action Step 2: Promote use of written asthma action plan as a tool for improved coordination.

Target high risk groups

Action Step 1: Develop and pilot self-management education for high users of health services.

Action Step 2: Implement more case management programs for high-risk patients who are high users of health services.

Reduce hospitalization rates

Action Step 1: Foster development of outpatient services in areas with high hospitalization rates.

Action Step 2: Coordinate asthma plans between primary care and hospital providers.

Improve rural access to asthma care

Action Step 1: Better define issues and barriers to care.

Action Step 2: Develop strategies to improve identification of and outreach to high-risk families.

Action Step 3: Develop and implement strategies to improve access to primary/specialty care and asthma supports in rural areas where lacking.

Action Step 4: Publicize community sources of support, resources and information.

Increase appropriate use of benefits

Action Step 1: Encourage people with asthma and their physicians to seek benefits clarification

Action Step 2: Identify gaps in coverage and develop options for providing needed services and supplies.

Improve clinical information systems

Action 1: Develop and pilot simple, low-cost clinical information and feedback mechanisms.

Action 2: Promote development, use of clinical information and feedback systems among health care providers.

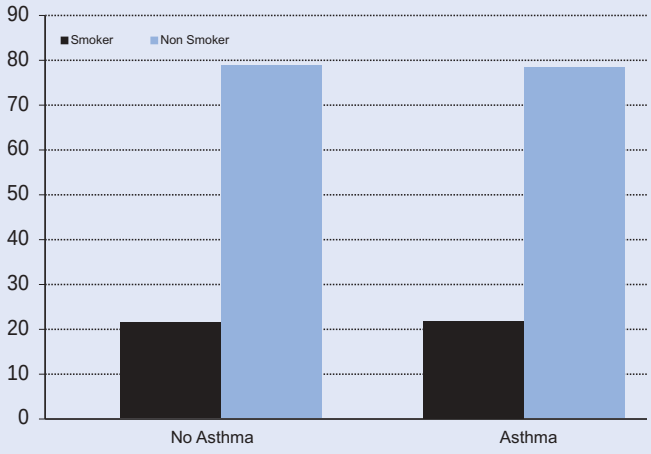
Action 3: Pilot health outcome measures to be used in outpatient care.

promote self-management

Effective asthma management, as in other chronic diseases, is best achieved when the patient actively manages his or her own care in collaboration with the primary care physician and other members of the health care team. This requires a different approach to asthma education. While the patient still needs basic information about asthma and how to manage it, the focus of patient education is one of mutual problem-solving with health professionals to improve patient functioning.

Because physicians and patients do not always perceive asthma in the same way, it is important that health professionals improve their ability to communicate what successful asthma control means in terms that patients understand. Patients who have complex, difficult-to-manage asthma may require active outreach and

Smoking Among Adults with Asthma
Percentage of Vermont adults age 18+ (1999-2000)



additional help to succeed with self-management strategies.

Successful self-management means that people with asthma and their families need to understand asthma, to be trained in self-management skills, to know when to seek help, how to monitor symptoms, and manage medications and exposure to triggers. It requires skills in practical problem solving and the ability to define and carry out the goals of the care plan. Most of all, it requires a working partnership between the physician and the patient.

Improve asthma self-management skills

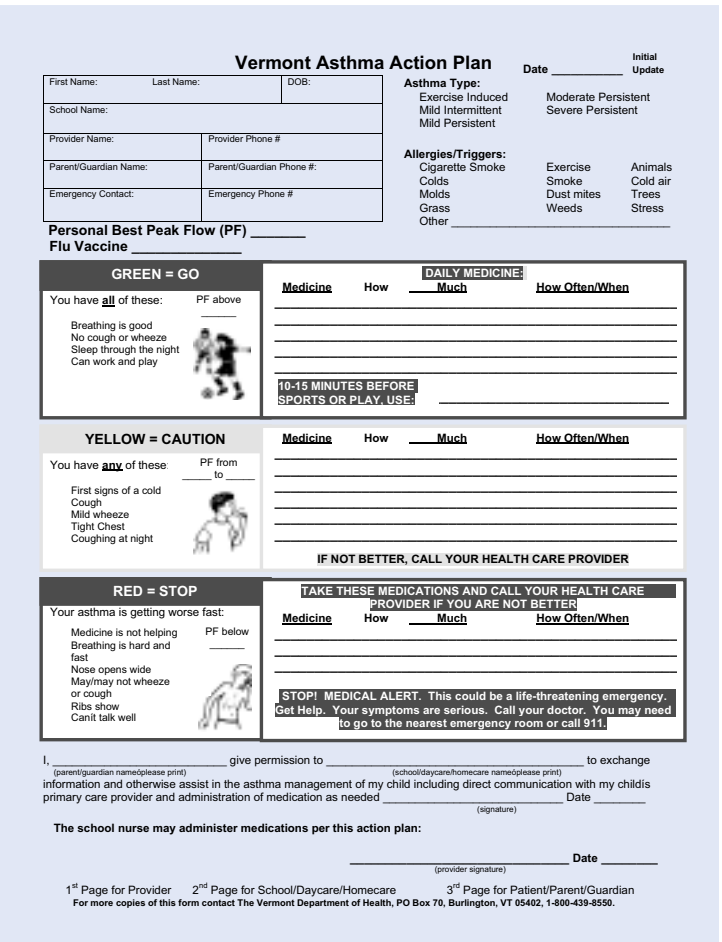
Action Step 1: Convene consumer focus groups to identify education and support needs.

Action Step 2: Develop and pilot patient self-management education programs.

Action Step 3: Develop and pilot programs to educate families about ways to reduce exposure to asthma triggers in their homes.

Action Step 4: Increase the proportion of people who have a written asthma plan with specific instruction about signs and symptoms and how to respond.

Action Step 5: Encourage people with asthma to seek benefits clarification from their insurers regarding coverage for supplies and medications.



Vermont Asthma Action Plan

Date _____ Initial Update

First Name:	Last Name:	DOB:
School Name:		
Provider Name:	Provider Phone #	
Parent/Guardian Name:	Parent/Guardian Phone #:	
Emergency Contact:	Emergency Phone #	

Asthma Type:
Exercise Induced
Mild Intermittent
Mild Persistent
Moderate Persistent
Severe Persistent

Allergies/Triggers:
Cigarette Smoke
Colds
Molds
Grass
Other _____
Exercise
Smoke
Dust mites
Weeds
Animals
Cold air
Trees
Stress

Personal Best Peak Flow (PF) _____
Flu Vaccine _____

GREEN = GO

You have **all** of these:
PF above _____
Breathing is good
No cough or wheeze
Sleep through the night
Can work and play

DAILY MEDICINE:

Medicine	How	Much	How Often/When

10-15 MINUTES BEFORE SPORTS OR PLAY, USE: _____

YELLOW = CAUTION

You have **any** of these:
PF from _____ to _____
First signs of a cold
Cough
Mild wheeze
Tight Chest
Coughing at night

Medicine	How	Much	How Often/When

IF NOT BETTER, CALL YOUR HEALTH CARE PROVIDER

RED = STOP

Your asthma is getting worse fast:
Medicine is not helping
Breathing is hard and fast
Nose opens wide
May/may not wheeze or cough
Ribs show
Canít talk well
PF below _____

TAKE THESE MEDICATIONS AND CALL YOUR HEALTH CARE PROVIDER IF YOU ARE NOT BETTER

Medicine	How	Much	How Often/When

STOP! MEDICAL ALERT. This could be a life-threatening emergency. Get Help. Your symptoms are serious. Call your doctor. You may need to go to the nearest emergency room or call 911.

I, _____ (parent/guardian nameóplease print) give permission to _____ (school/daycare/homecare nameóplease print) to exchange information and otherwise assist in the asthma management of my child including direct communication with my childís primary care provider and administration of medication as needed _____ (signature) Date _____

The school nurse may administer medications per this action plan:

_____ (provider signature) **Date** _____

1st Page for Provider 2nd Page for School/Daycare/Homecare 3rd Page for Patient/Parent/Guardian

For more copies of this form contact The Vermont Department of Health, PO Box 70, Burlington, VT 05402, 1-800-439-8550.

increase school and community support

Because children spend most of their waking hours in school the management of asthma in the school setting is of prime importance. Opportunities exist here for educational, clinical and environmental interventions to reduce exposure to triggers and improve the well-being of children with asthma.

Asthma-friendly School Environments

The Centers for Disease Control and Prevention (CDC) has developed a series of recommendations to improve asthma management in the school setting. In addition to reducing exposure to asthma triggers the recommendations include strategies related to clinical services, asthma education, access to medications and adequate asthma support. The recommendations also encourage students with asthma to participate in physical education and sports.[25]

Air Quality and Environmental Health

Vermont Act 125 mandates that the departments of Health, Education, and Buildings and General Services, and the Agency of Natural Resources develop a voluntary environmental health program for schools. Project Envision was subsequently developed by the Department of Health with the assistance of an advisory panel of environmental, education and facilities management experts. The project references the U.S. Environmental Protection Agency Tools for Schools kit and encourages its use to improve the school environment. This program includes reduction of asthma triggers and implementation of best practices for asthma management.

Community Support

The presence or absence of local community support contributes to the success or failure of an individual's efforts to cope with asthma. "Support" may simply be community awareness of the nature of asthma and the understanding that people who have it can lead healthy lives. Or support may consist of groups of parents whose children have asthma, or peer groups of teens or elders who are available to provide information, empathy and suggestions to each other about

what works. Support can also be experienced as an educational program targeted to people with asthma to help them learn specific skills to better manage their condition. Or it could be a resource center that provides information and sample asthma supplies.

Participants in local area asthma meetings repeatedly identified the need for local supports (groups, assistance with purchasing medical supplies such as peak flow meters, nebulizers, etc.) and information about asthma and asthma management.

Educate students, parents and school personnel about asthma

Action Step 1: Implement evidence-based asthma education programs.

Action Step 2: Provide school nurses with updated School Health Manual for Asthma.

Action Step 3: Provide school nurse training in current medications, asthma management and patient self-management education.

Action Step 4: Develop and deliver asthma education for preschool providers.

Improve school management and support systems

Action Step 1: Promote appropriate management and support systems in schools (e.g., written permission to carry medications, plan for dealing with student asthma episode at school-supported activities, etc.)

Action Step 2: Promote safe participation in physical education and athletic activities for students with asthma.

Increase use of environmental assessments and preventive maintenance practices

Action Step 1: Implement U.S. EPA "Tools for Schools" and Project Envision.

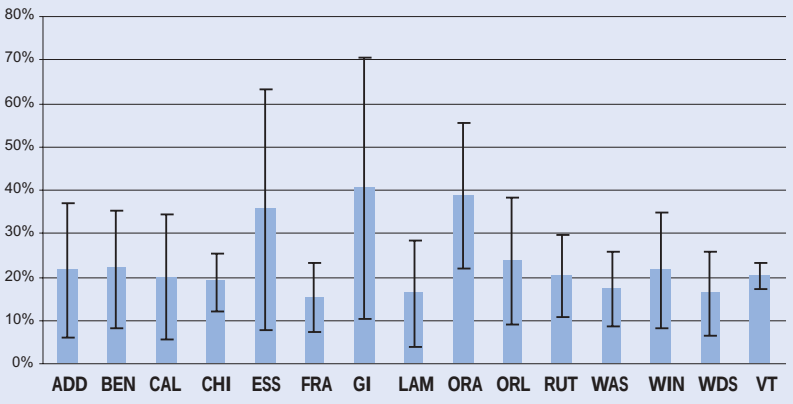
Action Step 2: Promote development of low-cost strategies to reduce children's exposure to air pollution at school including diesel emissions.

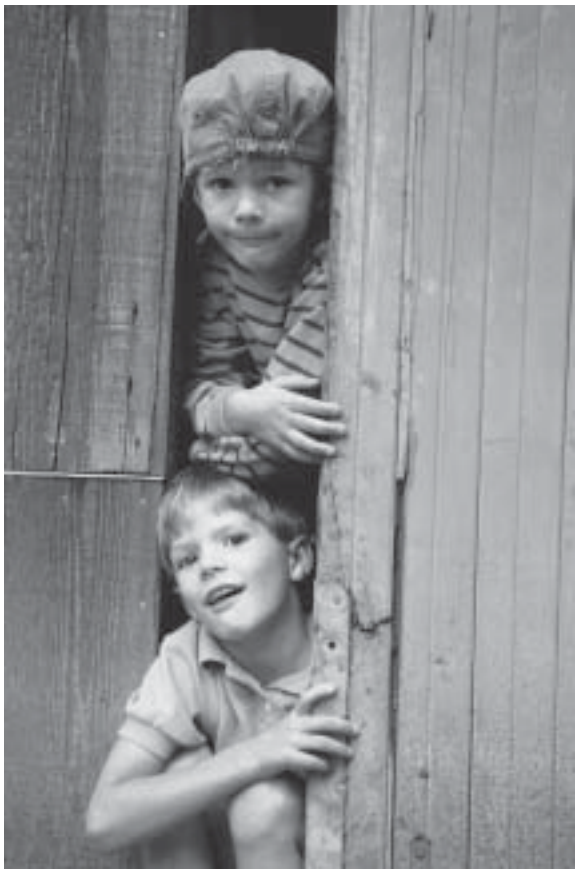
Support local community efforts

Action Step 1: Identify, develop and publicize local community sources of support, resources and information for people with asthma.

Action Step 2: Promote community planning processes to raise public awareness and develop local asthma programs, including community supports for high risk-high stress families.

Children's Exposure to Environmental Tobacco Smoke by County
Percentage of households with children under age 5 where ETS exposure has taken place in the past 30 days, 1999-2000





improve asthma surveillance

Asthma surveillance is the ongoing systematic collection, analysis and interpretation of asthma-related data for use in planning, implementation and evaluation of public health practice. In addition to providing the public with information about asthma in their state and local community, surveillance data supports health-planning activities. It permits identification of groups most likely to have asthma and suggests ways to improve asthma control.

An asthma surveillance system should thus provide answers to several key questions: (1) How much asthma is there and what are the trends in asthma occurrence over time? (2) How severe is the asthma and what are the trends in asthma severity over time? (3) How well is asthma controlled and what are the trends in asthma management over time? (4) What is the cost of asthma?[26,27]

Surveillance System Framework

The Vermont Asthma Surveillance System is based on the Asthma Surveillance Conceptual Framework, Healthy Vermonter 2010 goals, and the Institute of Medicine report, "Clearing the Air: Asthma and Indoor Air Exposures." The framework includes data sources and indicators to monitor the trends of asthma across Vermont.

Health indicators suggest that asthma affects Vermonters of all ages and includes such things as risk factors (e.g., smoking), prevalence (i.e., the number of individuals with asthma), absenteeism from school or work, emergency department visits, hospital admissions and mortality data. A variety of data sources are and will be used to collect information on these indicators including surveys, population-based data sets, school records, hospital discharge data and vital records (i.e. death certificates). Administrative data and reports from public and private payers may provide another source of surveillance information.

Data collected through this activity will be used to monitor progress toward the asthma-re-

lated *Healthy Vermonters 2010* objectives by describing who is developing asthma, identifying at-risk populations, measuring trends in asthma, and in planning and evaluating programs to reduce the burden of asthma .

Evidence is growing of the impact of outdoor environmental factors on asthma. As data becomes available in this area, it will be integrated into the surveillance system.

Enhance statewide surveillance

Action Step 1: Enhance statewide surveillance based on the Conceptual Framework for Asthma Surveillance health indicators and data sources.

Action Step 2: Collect and report population level health status data such as number of symptom free days, days missed from school, etc.

Action Step 3: Use asthma data to guide program priorities and policies.

Action Step 4: Distribute surveillance data summaries to a variety of audiences.

Examine environmental health factors

Action Step 1: Explore ways to integrate health and environmental data in order to examine the potential relationships among environmental factors and asthma in Vermont.

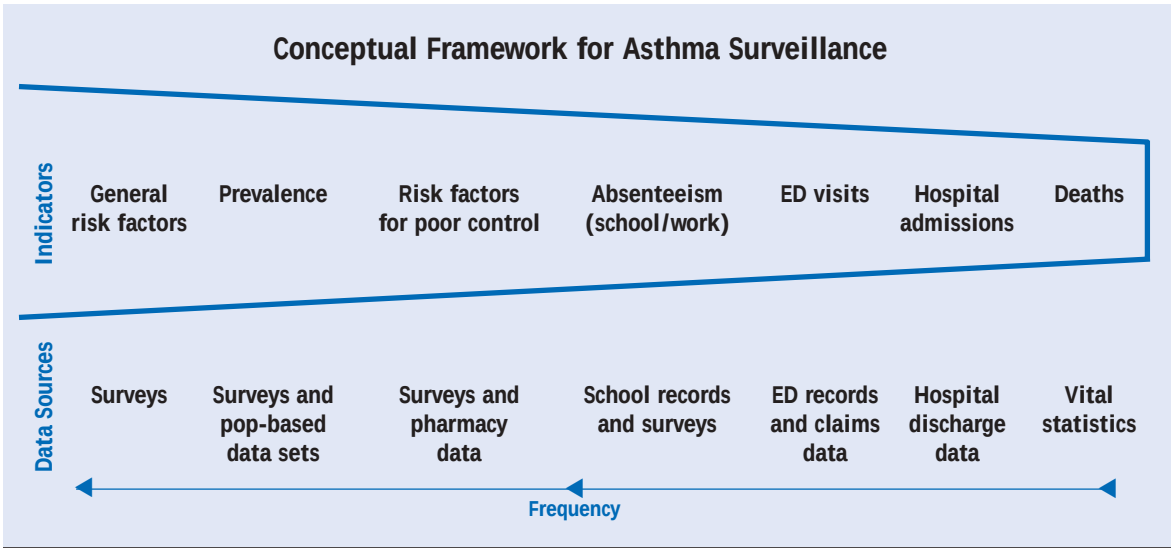
Estimate costs of asthma

Action Step 1: Identify data sources and models to estimate indirect and direct costs of asthma in Vermont children and adults.

Monitor effectiveness of the Vermont Asthma Prevention Plan • 2003

Action Step 1: Conduct selected evaluations of effectiveness of program implementation.

Action Step 2: Report on written asthma management plan pilot projects.



vermont planning process

As a first step toward understanding and improving the quality of asthma care in Vermont the Department of Health obtained a planning grant from the Centers for Disease Control and Prevention (CDC). The goals of this grant were to develop a surveillance system to track the prevalence and characteristics of asthma among Vermonters and to establish a state plan to improve the prevention, diagnosis, treatment and management of asthma.

A state leadership conference was held in September 2001 to create a common understanding about asthma and establish a framework for state and local planning efforts. Eighty-nine leaders representing 53 health, education and housing organizations attended. Four working groups in the areas of clinical issues, policy and data, school -based interventions and environmental interventions developed assessments of what is currently working in asthma management in Vermont, identified gaps and barriers and defined a range of immediate and long-term goals.

An Asthma Advisory Panel was created to provide advice and recommendations to the Asthma Program. Fifty-six individuals and organizations currently serve on this body. Several task groups have worked to address priority needs identified at the conference. Among these were the identification of data elements required to track asthma in Vermont, the creation of a written asthma management plan form, a common asthma treatment guideline (based on the National Asthma Education Prevention Program 2002 Updated Guideline),[28] a school health manual, and training workshops for building professionals about the health effects of building technologies.

Community Involvement

Because the provision and the quality of health care is local, and asthma needs vary from community to community in Vermont, local area asthma meetings were held in 12 locations around the state to hear what health, education and housing professionals, and consumers thought was needed to improve asthma care in their communities. Participants in these meetings were asked to identify needs, gaps and barriers and a handful of specific action objectives they could carry out to make asthma care better. In keeping with the action orientation of asthma planning, seven local asthma coalitions—Springfield, Rutland, Addison County, Burlington, Lamoille County, Newport and Northwest Vermont—were created from this planning process.

The content of these meetings, along with the results of the state leadership conference, surveillance data

and findings from the research literature, form the basis for the recommendations in this plan.

Interdepartmental Work Group

Just as successful asthma control requires a multi-level approach across systems, boundaries and providers and a highly organized delivery system, successful asthma planning itself requires the efforts of staff across programs and divisions of the Health Department. Accordingly, an Interdepartmental Working Group composed of representatives from four divisions (Health Protection, Health Improvement including the Tobacco Control Program, Health Surveillance and Community Public Health) have guided the Asthma Program through this three-year planning process.

This internal working group will continue during the implementation phase of the Asthma Plan.

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TASK GROUPS

To maintain forward momentum in a comprehensive planning process that occurred in a little more than 14 months, eight groups with overlapping membership worked on a set of inter-related tasks.

- Asthma Management Plan Strategy Group
- Written Asthma Management Plan Form Work Group
- Physician Pilot Asthma Management Plan Implementation/Evaluation Group
- School Nurse Pilot Asthma Management Plan Implementation/Evaluation Group
- Health Plan Pilot Asthma Management Plan Implementation/Evaluation Group
- Common Asthma Guideline Work Group
- Education Goals Setting Group
- Clinical Information and Feedback Systems Group

end notes

[1]Centers for Disease Control and Prevention, National Center for Environmental Health. On-line: www.cdc.gov/nceh/airpollution/asthma/asthmaAAG.htm

[2]Vermont Department of Health. 2002 Youth Tobacco Survey.

[3]Vermont Department of Health. 2001 Behavior Risk Factor Surveillance System.

[4]National Academy of Sciences. (May 2000). Clearing the Air: Asthma and Indoor Air Exposures. Washington, DC: National Academy Press.

[5]American Lung Association. (1998-1999). Lung Disease Data Report.

[6]Vermont Department of Health, 1999 Hospital Discharge data.

[7]Centers for Disease Control and Prevention. On-line: www.cdc.gov/nceh/airpollution/asthma/asthmaAAG.htm

[8]Maintenance medications prevent asthma symptoms.

[9]Rescue medications relieve asthma symptoms.

[10]Gauderman, W., et al. (2002). Association between Air Pollution and Lung Function Growth in Southern California Children Results from a Second Cohort. American Journal of Respiratory and Critical Care Medicine, 166: 76-84.

[11]Vermont Department of Health. Asthma brochures. 2002.

[12]Vermont Department of Health. 2002.

[13]National Asthma Education and Prevention Program. (February 1996). Considerations for Diagnosing and Managing Asthma in the Elderly. NAEPP Working Group Report. National Institutes of Health, National Heart, Lung and Blood Institute. NIH Publication No. 96-3662.

[14]Lee, K., Chin, N. & Lim, T. (2000). Asthma in the Elder a More Severe Disease. Singapore Medical Journal, 4, 12: 579-581.

[15]Enright, P., et al. (1999). Underdiagnosis and Undertreatment of Asthma in the Elderly. Chest, 116, 3: 603-613. Also Sin, D. & Tu, J. (2001). Underuse of Inhaled Steroid Therapy in Elderly Patients with Asthma. Chest, 119, 3: 720-725.

[16]Vermont Department of Health. Disease Control Bulletin. Chronic Disease in Vermont: Asthma. October 1999.

[17]Abelsohn, A., Stieb, D., Sanborn, M. & Weir, E. (April 30, 2002). Identifying and Managing Adverse Environmental Health Effects: 2. Outdoor air pollution. CMAJ, 166, 9.

[18]Burnett, R., et al. (2001). Association between Ozone and Hospitalization for Acute Respiratory Diseases in Children Less than 2 Years of Age. American Journal of Epidemiology, 153, 5: 444-452.

[19]Delfino, R., et al. (February 1977). Effects of Air Pollution on Emergency Room Visits for Respiratory Illnesses in Montreal, Quebec. American Journal of Rspiratory and Critical Care Medicine, 155,2: 568-576.

[20]Dales, R., et al. (December 2000). Influence of Ambient Fungal Spores on Emergency Visits for Asthma to a Regional Children's Hospital. American Journal of Respiratory and Critical Care Medicine, 162, 6: 2087-2090.

[21]Thurston, G., Lippmann, M., Scott, M. & Fine, J. (1997). Summertime Haze Air Pollution and Children with Asthma. American Journal of Respiratory and Critical Care Medicine, 155, 2: 654-660.

[22]Institute of Medicine. (2001). Crossing the Quality Chasm: A New Health System for the Twenty-first Century. Washington, DC: National Academy Press.

[23]National Asthma Education Prevention Program (2002). Quick Reference NAEPP Expert Panel Report guidelines for the Diagnosis & Management of Asthma. Update on Selected Topics 2002. www.nhlbi.nih.gov/guidelines/asthma/execsumm.pdf
[24]Crossing the Quality Chasm. See also, Berwick, D. (2002). A User's Manual for the IOM's 'Quality Chasm' Report. Health Affairs 21, 3: 80-90.
[25]Centers for Disease Control and Prevention. (2002). Strategies for Addressing Asthma within a Coordinated School Health Program. Atlanta, GA: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion. On-line: http:www.cdc.gov/healthyyouth/healthtopics/asthma
[26]Boss, L., et al. (2001). The Public Health Surveillance of Asthma. Marcel Dekker, Inc.
[27]Centers for Disease Control and Prevention. Updated guidelines for evaluating public health surveillance systems: recommendations from the guidelines working group. MMWR 2001 (July 27); 50 (No. RR-13).
[28]National Asthma Education Prevention Program. (2002). EPR Update. On-line: www.nhlbi.nih.gov/guidelines/asthma/execsumm.pdf

data note

Charts on pages 4 and 19 include bars showing 95 percent confidence intervals. The confidence interval is the range of values within which the true rate is expected to fall. If the confidence intervals of two groups overlap, then any difference between the two rates or percentages is not statistically significant.

bibliography

A more complete bibliography is available on request from the Vermont Department of Health, Asthma Program, 802-863-7220 or at *www.HealthyVermonters.info*.

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